COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
Fax: 804-698-4019 - TDD (804) 698-4021
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

REGULATORY ADVISORY PANEL MEETING SUMMARY
Triennial Review - Water Quality Standards
January 16, 2014

Welcome and Introductions

Advisory Panel Members and Alternates Present:

City of Richmond: *Grace LeRose, Pat Bradley*
Dominion Power: *Ken Roller, Oula Shehab, Robert Norman, Jason Ericson*
Friends of the Rivers of Virginia (FORVA): *Patti Jackson*
Hampton Roads Planning District Commission: *Jenny Tribo*
Hampton Roads Sanitation District: *Jamie Mitchell*
VA Association of Municipal Wastewater Agencies: *Jamie Heisig-Mitchell*
VA Farm Bureau Federation: *Wilmer Stoneman*
VA Manufacturer's Association/VA Mining Issues Group: *Brooks Smith*
VA Coal & Energy Alliance (formerly VA Mining Association): *John Paul Jones*
US Environmental Protection Agency (EPA): *Cheryl Atkinson*
US Fish & Wildlife Service (USFWS): *Brett Hillman*
VA Dept. Conservation & Recreation (DCR): *Rene Hypes*
VA Dept. Game & Inland Fisheries (DGIF): *Ernie Aschenbach*
VA Dept. Health (VDH): *Matt Skiljo, Angie McGarvey, Roy Soto*

DEQ Staff Present:
John Kennedy (Facilitator), Alex Barron, David Whitehurst, Allan Brockenbrough, Arthur Butt, Craig Lott

After introductions, John Kennedy reminded the panel members of policies and procedures at State Water Control Board (Board) meetings. Board policy does not provide for oral comment to the Board at the upcoming meeting when the Board will consider which issues will be carried through to the proposed stage of the rulemaking process. The appropriate time to address the Board would be the meeting when the proposal goes to the final stage and that opportunity to orally address the Board is reserved for those that provided comment during the proposal comment period.

Responses to questions from December 13, 2013 meeting

DEQ staff provided responses to the Panel for issues and questions raised during the previous meeting.

Question: Does the copper Biotic Ligand Model (BLM) allocate all dissolved organic carbon (DOC) metal binding capacity to copper only?

EPA Response: *The copper BLM calculates all the binding capacity of DOC to copper. The binding capacity of DOC to other metals is not taken into consideration since they all have different binding, equilibrium and saturation constants/rates.*

One Panel member that could not make the meeting (Chris French) requested that DEQ staff convey concerns that the BLM appears to make *"....very liberal assumption that over-calculates the available DOC for Cu to bind to. This incorrect assumption could lead to greater localized Cu toxicity to aquatic communities and increase water quality impairments as a result of not enough DOC being chemically available as the model predicts. In addition, point source dischargers who might utilize the model might be subject to increased enforcement action if their discharge is shown to have a localized impact to aquatic resources (via biological monitoring techniques used to support Virginia's narrative standard).*"

Question: What is the status of a BLM for zinc?

EPA Response: *EPA is not currently working on developing new criteria for zinc; EPA is aware of work being done by industry to develop a BLM for zinc but it is not a priority at this time for EPA.*

Question: What information does EPA have concerning toxicity of manganese with regard to human health and/or aquatic life?

EPA Response: *Some toxicity information can be found in IRIS. EPA also provided manganese epidemiology study summaries for review.*

Question: What is the status of EPAs national recommended criteria for selenium?

EPA Response: EPA is i*n the process of updating freshwater ambient water quality criteria for Se to reflect the latest scientific information. EPA intends to propose modifications to its national criteria for Selenium in the coming months. That proposal will be distributed for public comment and undergo external peer review. For more information visit: http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/selenium/*

Question: Is it possible to receive any assurance from EPA that one datum within a 30-day period will not have to be considered to represent a geometric mean and assessed against their proposed criteria; but should be assessed using the Statistical Threshold Value (STV) instead?

EPA Response: *The 2012 criteria have numerous changes from the 1986 criteria including: that the criteria consist of both a geometric mean and statistical threshold value. Number of samples collected is not an approvable element of a WQS package. States should not include a minimum sample size as part of their criteria submission. When identifying sampling frequency as part of a state's monitoring plan, a state may consider that, typically, a larger dataset will more accurately characterize water quality, which may result in more*

meaningful attainment determinations. EPA is recommending that states conduct at least weekly sampling to evaluate the GM and STV over a 30-day period and encourages more frequent sampling at more densely populated beaches.

There was some discussion regarding apparent dichotomy within EPA given recent proposed rules to the federal Water Quality Standards. The proposal suggests that States may adopt assessment procedures (typically in State guidance) into their WQS regulation yet EPA is not recommending that States adopt requirements regarding the number of samples necessary to assess against the new recreational bacteria criteria. The EPA panel member suggested a DEQ/EPA conference call in the near future to discuss the potential acceptability of implementing a 90-day data period for assessment purposes. It was then asked if it was true that EPA is requiring all coastal states to adopt the new criteria by December of 2015. The response was 'yes' and the consequence of failure to do so could be legal action.

Question: Is EPA's national recommended criteria for the protection of human health updated to reflect the recent changes to the reference doses and/or oral slope factors contained in IRIS database?
EPA Response: *EPA is using the updated IRIS toxicity values for chemicals VA is considering for human health updates.*

Chemical	Existing Criteria (µg/L) Public Water Supply	Updated Criteria (µg/L) Public Water Supply	Existing Criteria (µg/L) All Non-PWS Waters	Updated Criteria (µg/L) All Non-PWS Waters
Carbon Tetrachloride	2.3	4.3	16	30
Cyanide , free	140	4.2	16,000	480
Hexachloroethane	14	5.0	33	12
Methylene Chloride	46	170	5,900	22,000
Nitrobenzene	17	68	690	2,800
Pentachlorophenol	2.7	0.80	30	9.1
Tetrachloroethylene	6.9	130	33	620
Trichloroethylene	25	7.0	300	82

It was asked of EPA if they had reviewed VA's recalculated human health updates and the response was that they had not at this time. It was noted that some of the compound concentrations had become more stringent while others less. A RAP member recommended not going forward with those compounds that had become less stringent before EPA reviews DEQ's updates and VA should use the most protective assumption. Alex Barron explained the conservative nature of risk assessment for human health criteria and that more recent and accurate information dictates calculation of the criteria and the level of protection afforded is the same whether the resulting concentrations go up or down.

The RAP member then stated that there was no need to allow for concentration increases if dischargers were meeting current limits. If the current standards are overly-conservative, they should stay that way. It was noted that would be more of a public policy decision that a decision based on current science. The RAP member wants the Board to be aware of this position regarding conservatisim and requested this view be made a part of the Board package the members are to receive prior to the Board meeting when this issue would be considered for proposal inclusion.

Question: Does EPA have information or recommendations for limiting bromide (Br) in surface water to protect public water supplies?
EPA Response: *EPA is aware of concerns that elevated bromide can result in the increase of trihalomethane concentration as a disinfectant byproduct in finished drinking water formation. There is an internal EPA workgroup to scope out the issues which are still in an early stage. EPA sent DEQ several background documents relating to the bromide issue.*

Question: What is the scope of carbaryl (Sevin) use in VA?
DEQ Response: *DEQ staff contacted the VA Department of Agriculture & Consumer Services (VDACS) to inquire if they had, or knew of any other agencies that may have, information regarding carbaryl which a commonly used pesticide. VDACS staff responded that "Virginia does not currently collect pesticide use data nor any type of data related to the distribution or sale of pesticides in the Commonwealth". DEQ staff were provided with a link to a searchable data base for pesticide product registration information in VA. A search of the data base indicates that approximately 90 carbaryl-containing products are registered in the state.*

Report to Panel members the results of a DEQ/DGIF/USFWS meeting on regarding freshwater mussel distribution in VA with regard to potential application of alternate ammonia criteria to 'mussel-free' geographic areas.
DEQ Response: *The consensus between the 3 agencies was that Unionid mussels should be considered to be likely in any perennial stream in Virginia. Intermittent headwater streams potentially may not have resident mussels. Recommendation is to apply EPA's new recommended freshwater ammonia criteria statewide and that a case by case survey would be needed to determine the absence of mussels for the application of alternative, site specific criteria.*

Question RE: Special Standard 'm': Does regulatory history indicate the effluent limits for discharges to control nutrients to the Chickahominy River watershed above Walker's Dam are to be solely applied to municipal wastewater?
DEQ Response: *The intent of Special Standard 'm' was to control nutrient inputs from wastewater treatment facilities as an effort to limit algae blooms in Chickahominy Lake, a downstream reservoir that is a public water supply for Newport News. The standard applies stringent discharge effluent limits for parameters such as ammonia nitrogen, phosphorus, biological oxygen demand (BOD), and suspended solids. A search of DEQ historical files appear to indicate, although there was no decision or action at the time of adoption to exclude any particular class of "discharger", the standard was more appropriate for application to sewage treatment plants (STPs) as these are most likely dischargers of*

nutrients and were the only type of discharges to the watershed when the standard was adopted.

This question arose from Vulcan, Inc., a company with a non-metallic mining operation adjacent to the Chickahominy River. Wastewater from the facility is gravel and sand mining process water and though the facility does not discharge (wastewater is pumped and hauled offsite for either treatment elsewhere or to another Vulcan facility to be used again as process water) and they have the special standard 'm' limits applied to their discharge permit even though the wastewater does not contain nutrients. Discussion centered on whether it was appropriate to apply the standard to discharges of treated wastewater that are of non-organic origin and options for amending the standard to exempt those discharges. A suggestion was made to amend special standard 'm' with added language stating that the standard only applies to wastewater of organic origin. It was commented that it would be necessary to demonstrate to EPA the waters are still protected. The group was reminded that even if special standard 'm' did not apply, the discharge would still have to comply with the non-metallic mining general permit limits.

Manganese

Dr. Madeline Schreiber, a professor in the Department of Geosciences at VA Tech, gave a presentation regarding a multi-year study of the fate and transport of manganese (Mn) concentrations in the Roanoke River watershed. . General findings of the study indicate Mn and Mn-containing compounds are common in surface waters and highly variable spatially and temporally. It is not uncommon for total Mn concentrations to be above the criterion for public water supplies (50 ug/l).

After the presentation, DEQ staff outlined two options to address the issue of criteria exceedences due to naturally occurring high concentrations of Mn: criterion modification or criterion deletion. One RAP panel member stated that it makes sense to delete the criterion as it is a common, naturally occurring element and the intent of the 50 ug/l is for application to finished drinking water as a Safe Drinking Water Act secondary maximum contaminent level to protect against laundry staining. A representative of Fairfax Co. Water Authority that attended the meeting as a guest expressed concerns that urbanization around reservoirs may exacerbate Mn concentrations for those reservoirs that serve Fairfax and other northern Virginia locales.

The EPA representative asked if DEQ staff had looked at the epidemiological studies she had forwarded and asked if the agency had any concerns with regard to Mn and human health. Alex Barron stated that staff had reviewed the studies and done additional investigation into Mn as a necessary dietary supplement and associated recommended daily doses. Given that the National Research Council recommends 2,000 – 5,000ug/day as safe and adequate, the World Health Organization drinking water guidelines for manganese are 400 µg/L, and one a day vitamins have in the neighborhood of 2,000 ug/dose, DEQ staff have concluded that the risk of Mn human health toxicity from surface waters is negligible. It was then asked of the DGIF if they had any concerns with Mn and fish toxicity. They answered 'no'.

Recreational Bacteria Criteria

All pertinent discussion occurred during the response to the bacteria criteria action item.

Freshwater Ammonia Criteria

Given the answers regarding mussel distribution in VA, DEQ staff stated their opinion it would be appropriate to presume mussels are present in any perennial freshwater stream in Virginia. It was asked if it was known approximately how long a survey would take to prove absence. The response from DGIF and DCR was that it is not known at this time what the range of effort would be required of a survey to prove absence nor what would be the cost of a survey.

Selenium Criteria

DEQ staff informed the RAP that the current selenium freshwater criteria are based on EPA recommendations that are 25 years old. That, coupled with new acute and chronic toxicity data as well as delays in new Se criteria recommendations from EPA, has resulted in a request from the mining industry for VA to consider updating the existing criteria. The group was informed that a VA-specific Se criteria recalculation report generated by GEI Consultants had been submitted for consideration. The recalculation for VA was based on a similar study for Kentucky that ultimately resulted in that state's adoption of new Se criteria. EPA Region 4 disapproved KY's acute criterion and approved the chronic criterion.

Steve Canton of GEI Consultants then gave a presentation outlining the study procedures, conclusions, and implementation recommendations. The acute criterion determined by the VA-specific recalculation is 258 ug/l and the chronic criterion is expressed as either a whole body tissue concentration of 8.6 ug/g or egg/ovary tissue concentration of 19.3 ug/g. It was recommended that the chronic criterion be implemented in a two step procedure: Determine whether the water column concentration at the site exceeds a 5.0 µg/L threshold. If water column concentrations for total Se $\leq$ 5.0 µg/L, the water body is meeting its aquatic life use and considered attaining designated uses. If the water column concentration for total Se > 5.0 µg/L, then it is assessed using one of the two fish tissue values. If a species-composite fish tissue has a Se concentration that exceeds the tissue criterion, the site is considered in non-attainment of the water quality standard.

Discussion ensued between a meeting observer from Appalachian Mountain Advocates and Mr. Canton which centered on whether or not appropriate procedure was followed in the recalculation of the criteria. John Kennedy informed the panel that DEQ is aware of EPA disapproval of Kentucky's acute Se criterion as well as the subsequent lawsuit filed against EPA for approving the chronic criterion. He also informed the group of two joint resolutions recently introduced in the current General Assembly that request DEQ to "*...review the toxicity of selenium to aquatic life*." and to "*...consider related studies and revisions in selenium criteria undertaken by other states, including Kentucky*." The resolution also requires DEQ to "*....propose revisions to Virginia's selenium criteria as part of the current triennial review of water quality standards*." The resolution has yet to be voted upon in its original or an amended version. It was suggested by a RAP member that DEQ staff seek an opinion from the attorney general regarding the appropriateness/legality of the proposed joint resolutions.

Special Temperature Standard for Winter-Only Stocked Trout Waters

The special temperature standard under consideration for winter-only stocked trout waters was briefly discussed. The group was reminded of maximum temperature recommendations made

through consultation with USFWS. They recommended a maximum temperature of 28°C for the Roanoke River sections in question and 26°C for the Tinker Creek section. Based on available data for these two waterbodies, USFWS calculated their recommendation as daily medians. Alex Barron mentioned that most temperature monitoring data is insufficient to assess against a median temperature criterion and that DEQ would like to further discuss data analysis to determine an appropriate maximum temperature criterion for these waters.

Public Water Supply (PWS) Amendments/Deletions

David Whitehurst presented three proposed deletions and two modification of PWS designations within the river basin tables of the water quality standards and VA Dept. of Health responses for each.

1. Lower James River basin Section 1o - ~~James River from City Point (Hopewell) to a point 5 miles above American Tobacco Company's raw water intake.~~ (Delete)

VDH Response: May have been a raw water intake there in early days of the tobacco processing plant. Intake was most likely for industrial (process) water. No intake there for domestic water in the past 35 years. VDH could not find any records about a domestic water intake at that location in years prior to 1978 (VDH).

2. Upper James River basin Section 12i - ~~Dunlap Creek and its tributaries from the Covington Boys Home raw water intake to points 5 miles upstream.~~ (Delete)

VDH Response: Operations permit revoked August 2, 2002, as per the Boys' Home, Inc. request (VDH)

3. Potomac Basin Section 7f - ~~The Quantico Marine Base Camp Upshur and its tributaries' raw water intake on Cedar Run (located approximately 0.2 mile above its confluence with Lucky Run) to points 5 miles upstream.~~ (Delete)

VDH Response: Current operation permit lists only groundwater wells as the source for Camp Upshur. VDH is fairly confident that Quantico MCB has no plans or interest in returning to surface water withdrawal & treatment at this location (VDH).

4. New River basin Section 2a - New River from Radford Army Ammunition Plant's raw water intake (that intake which is the further ~~*downstream*~~ **upstream**), upstream to a point 5 miles above the Blacksburg-Christiansburg, V.P.I. Water Authority's raw water intake and including tributaries in this area to points 5 miles above the respective raw water intakes.

VDH Response: Raw water intake (PWSID 1155645) taken off-line on January 6, 2011. Operations permit was revoked on February 11, 2011, as this waterworks was consolidated with PWSID 1121643. Possibility that the RAAP intake may be used in the future for non-drinking water purposes (VDH).

5. Roanoke River basin Section 7a - Roanoke River and its tributaries from Salem's ~~#1~~ raw water intake to ~~*points 5 miles upstream from Salem's #2 raw water intake*~~ the Western Virginia Water Authority's Spring Hollow Reservoir.

VDH Response: Records indicate that the Salem Plant #2 and its raw water intake (PWSID 2775400) were closed effective on July 15, 2005. Operations permit was revoked on August 24, 2005, as per the City of Salem's request.

Handouts distributed at the meeting:

Agenda
Copies of presentation slides
Summary of December 13, 2013 meeting